Art. XVII.—*Note on the Existence of Spirochaetosis affecting Fowls in Victoria.*

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The Fowl Tick (*Argas*) has been recognised as an exceedingly troublesome skin parasite of the domesticated fowl in certain parts of the northern districts of Victoria for a number of years past, and its association with a febrile condition, especially in young birds during the summer months, has, it would appear, been commonly observed, although, as far as I can gather, beyond some short paragraphs in the daily press (until the last month, when an article by Dr. A. A. Brown appeared in the "Journal of Agriculture"), no definite scientific observations have been placed on record. This is rather surprising in view of the fact that the Department of Agriculture, I am informed, has for some years been endeavouring to prevent the spread of the tick to other districts.

Soon after my arrival in Melbourne, at the commencement of last year, I was informed of the existence of the so-called "tick-fever" in certain districts. Seeing that since 1903, when Marchoux and Salimbini first described the presence of a spirochaete in the blood of Brazilian fowls affected with the tick *Argas*, other observers in India, Sudan, Rhodesia, Bulgaria and elsewhere have also demonstrated the connection between the two parasites, I was naturally anxious to ascertain if in Australia, along with the tick as a skin parasite, the spirochaete was also associated with a blood parasite. I found it, however, impossible to secure a tick-infected fowl during the past summer.

Since then, Dr. S. Dodd, Chief Veterinary Officer and Bacteriologist to the Queensland Government, in his last annual report, describes fully the disease Spirochaetosis as affecting

fowls in that State, and has demonstrated its transmission by the common fowl-tick, *Argas persicus*.

Through Dr. Brown, of the Agricultural Department, at the request of the Minister for Agriculture, I received on 22nd January a live fowl presenting the following definite symptoms:—General dejection, somnolence, ruffled feathers, pale comb, slight diarrhœa and loss of appetite. Only four ecto-parasites were to be found on the skin, these being apparently all larval forms of a parasite of the Argas type, and were handed to Dr. G. Sweet for identification. These Dr. Sweet has described in this volume as belonging to a new species, *A. victoriensis*.

Examination of blood smears made in the usual way fixed in alcohol and stained with Giemsa's stain, gentian violet, etc., demonstrated considerable numbers of the characteristic spirochaetae as described by Marchoux, Laveran and others. There was also a marked increase in the number of eosinophile white blood corpuscles.

The spirochaetae increased in number till the time of death 56 hours after arrival. Post-mortem examination did not disclose any decided pathological change, and the spleen was not enlarged.

Enquiry from Dr. Brown elicited the information that the bird had been sent from a non-infected to an infected district, and there exposed to the ticks only six days prior to being forwarded to me, which indicates the rapidity of the infection.

A live fowl was inoculated subcutaneously with five drops of blood from the heart of the first fowl, a few minutes after death. No swelling developed at the seat of inoculation. Spirochaetes were found in the peripheral blood on the third day, but only in one to every twenty fields of the microscope. On the fourth and fifth days the numbers increased greatly, and several could be seen in each field. On the sixth day, however, extremely few could be detected, while subsequently none could be seen. The animal remained in apparent health. The disappearance occurred without any preliminary clumping, and no intra-corpuscular bodies of Balfour's "after phase" could ever be determined. It should be also noted that careful examination of smears from various parts of the naturally affected fowl, which died at the laboratory, failed to reveal any bodies within

the red corpuscles, as described by Dr. A. A. Brown in the "Journal of Agriculture" for February.

Intracorpuscular forms of spirochaetes have been described by Balfour[1] as constituting the "after phase" of spirochaetosis. These bodies were only found in animals which recovered, and he regards them as a definite stage in the life history of the blood parasite. Von Prowazek has recorded somewhat similar intracorpuscular bodies in fowl Spirochaetosis. Dodd, however, in his Queensland experiments failed to demonstrate such bodies in any of the recovered fowls. My examination of the blood in which the spirochaetes disappeared so suddenly also failed to detect any similar bodies to those described by Balfour.

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1 3rd Report. Wellcome Research Laboratory, Sudan.